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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/511,578	10/13/2004	Ljubomir Misev	CO/2-22659/A/PCT	4524
324	7590	05/01/2009	EXAMINER	
JoAnn Villamizar Ciba Corporation/Patent Department 540 White Plains Road P.O. Box 2005 Tarrytown, NY 10591			DAHIMENE, MAHMOUD	
			ART UNIT	PAPER NUMBER
			1792	
			NOTIFICATION DATE	DELIVERY MODE
			05/01/2009	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/511,578	<b>Applicant(s)</b> MISEV ET AL.	
	<b>Examiner</b> MAHMOUD DAHIMENE	<b>Art Unit</b> 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 April 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 5-7,9-21,28,38 and 40-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5-7,9-21,28,38 and 40-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/9/2009 has been entered.

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 5, 7 and all depending claims are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Regarding claims 5 and 7, are is indefinite because it recites multiple combinations of “or” and “and” in lines 6-8, 32-33, 38-40, 41, 42, 45-46, 60-63, 65, 65, 69, 74, 76, 90-91. It is not clear what combination is encompassed by the claim. Also the expression (in line 76) “which may also be interrupted” is indefinite because it is not clear if the ring is or is not interrupted. Applicant’s argument stating that the meaning are clearly given is not persuasive because it is impossible for the examiner to

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reasonably ascertain the scope of the claim when the number of possible combinations is undefined, even the applicant appears to agree by stating " any attempt to remove this wording would require an **extraordinary** amount of repetition of claim language. For" example "R1, R2 and R3 are each independently of the others a, b, c, d, or f" would become "R1 is a, b, c, d, or f; R2 is a, b, c, d, or f; R3 is a, b, c, d, or f". Given the number of variables in the instant claims, Applicants respectfully suggest that this would become unnecessarily cumbersome which in itself would contribute to confusion.". The examiner disagrees, and respectfully maintains that claims 5 and 7 are indefinite because, as applicant admits, the number of variables in the claims is extraordinarily huge which makes it extraordinarily difficult to ascertain the scope of the claims. Deciphering what each combination of "and" and "or" is confusing, to say the least. Similarly claim 7, is also indefinite because it recites multiple combinations of "or" and "and" in lines 15-16, 20, 29, 37-38, 41-42, It is not clear what combination is encompassed by the claim.

### ***Claim Rejections - 35 USC § 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 5-6, 9-21, are rejected under 35 U.S.C. 103(a) as being unpatentable over Borden et al (US 3,943,103) in view of McGinniss (US 3,847,771) , Schadel et al. (US 5,558,978) and Nakanishi et al. (US 5,439,545).

4. Borden discloses a radiation curable composition of one or more polyfunctional polymerizable reactive solvent and, optionally, one or more monofunctional reactive solvent (abstract). Borden discloses "Curing can be with conventional low, medium or high pressure mercury lamps or with a swirl-flow **plasma** arc radiation source by the process. Cure can be carried out in air **or under an inert gas atmosphere e.g., argon, nitrogen**. The time for cure will vary depending upon the particular energy source used, the composition of the coating, the thickness of the film and the surrounding atmosphere conditions. The equipment used in the cure and the conditions under which cure can be conducted are well known to those skilled in the art of radiation

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technology. Likewise, the time periods required are well known to those skilled in the art and do not require further elucidation" (column 4, line 36).

5. It is noted Borden does not expressly disclose a three-dimensional substrate, however, two dimensional substrates do not really exist because they would have zero thickness, therefor, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the curable composition of Borden to a three-dimensional substrate. One of ordinary skill in the art would have been motivated to apply the curable composition of Borden to a real three-dimensional substrate when the substrate requires abrasion protection and stain resistance.

6. It is noted Borden is silent about component (d) is as described in applicant's claims 5,

7. McGinniss discloses UV curing of polymerizable binders, stating "Typical UV emitters include various electric arc lamps, the plasma arc torch described in U.S. Pat. No. 3,364,387, and lasers having a lasing output in the UV spectrum range such as disclosed in U.S. Ser. No. 189,254. The subject matter of the foregoing references are incorporated herein by reference." (column 1, line 24). McGinniss further teaches "The sensitizer 2,2'-dithiobis-(benzothiazole) becomes synergized when used in combination with aromatic carbonyl photosensitizers such phenyl carbonyl compounds and aromatic amine carbonyl compounds and sometimes referred to in the art as Michler's Ketones. Examples of aromatic amino photosensitizers include: Michler's Ketone [4,4'-bis-(dimethylamino)-benzophenone]; 4,4'-bis-(diethylamino)-benzophenone; p-dimethylaminobenzaldehyde; 4,4'-bis-(dimethylamino)-benzil; p-

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dimethylaminobenzophenone; p-dimethylaminobenzoin; p-dimethylaminobenzil; N-substituted 9-acridanones; and those amino-aromatic (or phenyl) carbonyl compounds described in U.S. Pat. No. 3,661,588; and p-aminophenyl carbonyl compounds described in U.S. Pat. No. 3,552,973 and said patents are incorporated herein by reference. Aromatic carbonyl photosensitizers are preferably added to the pigmented binders in amounts of 0.1 to 2% by weight based on the pigmented-binder system.” (column 2, line 48).

8. McGinniss clearly teaches the synergistic sensitizer of his invention substantially improves a complete room temperature cure by UV or laser energy sources of an ethylenically unsaturated polymer containing inorganics, and Plasma arc torches generate UV.

9. Schadeli discloses “The polymerization is generally initiated by a conventional free-radical initiator. Examples are thermal initiators, such as ... photochemical free-radical formers, such as benzoin and benzil dimethyl ketal.” (column 10, line 16) .

10. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process of Borden to include any synergistic sensitizer of McGinniss and Schadeli because McGinniss and Schadeli teach the benefits of such class of free radical initiators which are conventionally used for polymerization.

11. One of ordinary skill in the art would have been motivated to include any free radical initiator such as the ones suggested by McGinniss and Schadeli in order to substantially improve a complete room temperature cure by UV from a plasma.

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12. It is also noted that Borden does not expressly disclose the swirl-flow **plasma** arc radiation source is a plasma located in a plasma discharge.

13. Nakanishi suggests the methods of exposing to a UV-irradiation or to a plasma discharge in order to subject the surface to a chemical activation are equivalent (abstract). the reference of Nakanishi is not relied on to teach producing a composite finger-touch key with superior fastness but is only relied on to teach the methods of exposing to a UV-irradiation or to a plasma discharge are equivalent for the purpose of subjecting the surface to a chemical activation.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process of Borden and use a plasma discharge because Nakanishi suggests the methods of exposing to a UV-irradiation or to a plasma discharge in order to subject the surface to a chemical activation are equivalent.

One of ordinary skill in the art would have been motivated to use a plasma discharge instead of the UV in order to insure all parts of the substrate are exposed to the same intensity of the plasma discharge as opposed to UV from a single UV lamp which is more of a point source as compared to a discharge plasma which will spread uniformly over the substrate. One of ordinary skill in the art would have been motivated to use a chamber to confine the plasma discharge in order to prevent accidental exposure of an operator to the potentially human tissue damaging electrically charged plasma.



***Claim Rejections - 35 USC § 103***

14. Claims 7, 28, 38, 40-44, are rejected under 35 U.S.C. 103(a) as being unpatentable over Borden et al (US 3,943,103) in view of McGinniss (US 3,847,771) and Toba (JP 10158039) and Schadeli et al. (US 5,558,978) and Nakanishi et al. (US 5,439,545).

15. It is noted Borden is silent about component (d) is as described in applicant's claim 7.

16. McGinniss teaches UV sources can be plasma.

17. Toba teaches a composition comprising diphenyl(9-anthrylmethyl)sulfonium tetrakis(pentafluorophenyl)borate 3, radically polymerizable compd. Aronix M 1100 40, urethane acrylate UA 306H 20, and tetrahydrofurfuryl acrylate 10 parts and irradiated with UV to give an optical fiber showing no strain. Toba teaches composition containing UV photo initiators as described by applicant's formula (V) are effective coatings.

18. Schadeli discloses "The polymerization is generally initiated by a conventional free-radical initiator. Examples are thermal initiators, such as ... photochemical free-radical formers, such as benzoin and benzil dimethyl ketal." (column 10, line 16) .

19. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process of Borden to include any initiators of Toba and Schadeli because Toba and Schadeli teach the benefits of such class of free radical initiators which are conventionally used for polymerization.

20. One of ordinary skill in the art would have been motivated to include any free radical initiator such as the ones suggested by Toba and Schadeli in order to

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substantially improve a complete room temperature cure by UV from a plasma as suggested by McGinniss.

***Claim Rejections - 35 USC § 103***

Claims 9-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Borden et al (US 3,943,103) in view of McGinniss (US 3,847,771) and Schadel et al. (US 5,558,978) and Nakanishi et al. (US 5,439,545) as applied to claim 1 above and further in view of KLINKENBERG (US 2002/0076504)

21. It is noted Borden is silent about components as described in applicant's claim 8.

22. McGinniss teaches UV sources can be plasma.

23. KLINKENBERG teaches a photoactivatable coating composition comprises a compound containing activated unsaturated group; activated methenyl-containing compound; catalyst in the form of Lewis or Bronsted base(s) with conjugated acids having an acid ionization constant of at least 10; and photolabile base as photoinitiator (paragraph 0109) as described in applicant's claim 8.

24. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process of Borden to include the photolabile base as photoinitiator of KLINKENBERG.

25. One of ordinary skill in the art would have been motivated to modify the process of Borden to include the photolabile base as photoinitiator of KLINKENBERG in order for the composition to be cured by UV radiation without problems in portions e.g. three-dimensional surfaces, that are not readily accessible to UV; or when the presence of

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pigments does not allow UV radiation to penetrate into lower layers. The composition has low volatile organic components. Problems resulting from oxygen inhibition during irradiation with UV light from fluorescent lamps are eliminated.

### ***Response to Arguments***

26. Applicant's arguments, filed 4/9/2009, with respect to the rejection(s) of claim(s) pending under 35 USC § 103 have been fully considered and are persuasive in view of applicant's amendments about curing by plasma. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of and Nakanishi et al. (US 5,439,545).

27. As to applicant's argument submitting that that the art fails to suggest combining instant component d with components a, b, c, a and b, or a and c in plasma curing nor is there reason to expect the observed synergy, this argument is not persuasive because the combination of the cited prior art of record addresses all the limitations of applicant's claims. Motivation to combine the reference has been provided.

### ***Conclusion***

28. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MAHMOUD DAHIMENE whose telephone number is (571)272-2410. The examiner can normally be reached on week days from 8:00 AM. to 5:00 PM..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on (571) 272-1465. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. D./  
Examiner, Art Unit 1792

/Nadine G Norton/

Supervisory Patent Examiner, Art Unit 1792